CLAIMS

I claim:

1. A gas/liquid separator assembly for use in a tubing string located in a borehole of a well, the separator assembly comprising:

a tubular outer conduit having a lower inlet for introducing gas and liquids within the interior of the outer conduit, the outer conduit having an upper outlet to allow fluids to pass to the exterior of the outer conduit;

a tubular inner conduit disposed within the interior of the outer conduit, the inner conduit having a flow passage and an inlet for introducing liquids discharged from the outer conduit into the flow passage, the inner and outer conduits being rigidly joined together at a first end; and

an adaptor that engages the inner and outer conduits at a second end to prevent lateral movement of the second end of the inner conduit within the outer conduit while allowing relative longitudinal movement of the outer and inner conduits from longitudinal compression or tension forces applied to the outer conduit.

2. The separator of claim 1, wherein:

the adaptor provides sealing engagement between the inner and outer conduits.

3. The separator of claim 1, further comprising:

a seal that is carried by the adaptor, the seal providing sealing engagement between the inner and outer conduits.

4. The separator of claim 1, wherein:

the inner and outer conduits are rigidly coupled together at the first end by a coupling having an outer conduit port and an inner conduit port that are isolated from one another, the outer conduit port communicating with the lower inlet of the outer conduit, and the inner conduit port communicating with the inlet of the inner conduit.

5. The separator of claim 1, wherein:

the outer conduit includes a tubular member having helical threads on each end configured for engagement with threaded portions of the tubing string for coupling the separator thereto.

6. The separator of claim 1, wherein:

the second end of the inner conduit is threaded and wherein the adaptor has corresponding threads for securing the adaptor to the second end.

7. The separator of claim 1, wherein:

the inner and outer conduits are each threaded on the first end and are rigidly coupled together at the first end by a coupling body having a first threaded portion for engaging the first end of the inner conduit and a second threaded portion for engaging the first end of the outer conduit, the coupling having an outer conduit port and an inner conduit port that are isolated from one another, the outer conduit port communicating with the lower inlet of the outer conduit, and the inner conduit port communicating with the inlet of the inner conduit.

8. A gas/liquid separator assembly for use in a tubing string located in a borehole of a well, the borehole being provided with a packer assembly coupled to the tubing string for isolating upper and lower sections of the borehole, the separator assembly comprising:

a tubular outer conduit configured for coupling to the packer assembly and tubing string and having a lower inlet for introducing fluids passed through the packer from the lower section of the borehole within the interior of the outer conduit, the outer conduit having an upper outlet spaced from the inlet to allow fluids to pass to the exterior of the outer conduit into the upper section of the borehole;

a tubular inner conduit disposed within the interior of the outer conduit, the inner conduit having a flow passage and an inlet for introducing liquids within the upper section of the borehole into the flow passage, the inner and outer conduits being rigidly joined together at a first end;

an adaptor that engages the inner and outer conduits at a second end to prevent lateral movement of the second end of the inner conduit within the outer conduit while allowing relative longitudinal movement of the outer and inner conduits from longitudinal compression or tension forces applied to the outer conduit.

9. The separator of claim 8, wherein:

the adaptor provides sealing engagement between the inner and outer conduits.

10. The separator of claim 8, further comprising:

a seal that is carried by the adaptor, the seal providing sealing engagement between the inner and outer conduits.

11. The separator of claim 8, wherein:

the inner and outer conduits are rigidly coupled together at the first end by a coupling having an outer conduit port and an inner conduit port, the outer conduit port communicating with the lower inlet of the outer conduit, and the inner conduit port communicating with the inlet of the inner conduit.

12. The separator of claim 8, wherein:

the outer conduit includes a tubular member having helical threads on each end configured for engagement with threaded portions of the tubing string for coupling the separator thereto.

13. The separator of claim 8, wherein:

the second end of the inner conduit is threaded and wherein the adaptor has corresponding threads for securing the adaptor to the second end.

14. The separator of claim 8, wherein:

the inner and outer conduits are each threaded on the first end and are rigidly coupled together at the first end by a coupling body having a first threaded portion for engaging the first end of the inner conduit and a second threaded portion for engaging the first end of the outer conduit, the coupling having an outer conduit port and an inner conduit port that are isolated from one another, the outer conduit port communicating with the lower inlet of the outer conduit, and the inner conduit port communicating with the inlet of the inner conduit.

15. A method of separating gas and liquids in a well of a subterranean formation, the well including a borehole with a tubing string that extends from the surface to a packer assembly located within the bore hole for isolating upper and lower sections of the borehole, the method comprising:

coupling a tubular outer conduit to the packer assembly and tubing string, the outer conduit having a lower inlet for introducing fluids passed through the packer from the lower section of the borehole within the interior of the outer conduit, the outer conduit having an upper outlet spaced from the inlet to allow fluids to pass to the exterior of the outer conduit into the upper section of the borehole;

providing a tubular inner conduit within the interior of the outer conduit, the inner conduit having a flow passage and an inlet for introducing liquids within the upper section of the borehole into the flow passage, the inner and outer conduits being rigidly joined together at a first end;

providing an adaptor that engages the inner and outer conduits at a second end to prevent lateral movement of the second end of the inner conduit within the outer conduit while allowing relative longitudinal movement of the outer and inner conduits from longitudinal compression or tension forces applied to the outer conduit.

16. The method of claim 14, wherein:

tension is continuously applied to the tubing string.